

AMENDMENT AND RESPONSE TO OFFICE ACTION

U.S. Application Serial No.: 09/700,099

Filed: December 11, 2000

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Currently amended) A floor covering comprising:
 - i) ~~at least one elastomer as a polymeric binder based on~~ at least one polyolefin with a density < 0.910 g/cm³, wherein the at least one polyolefin elastomer is at least partially cross-linked, and wherein the at least one polyolefin is selected from a copolymer of ethylene and a linear aliphatic α-olefin; and
 - ii) at least one grafted copolymer, wherein the at least one grafted copolymer is maleic acid anhydride grafted HD polyethylene, wherein the at least one polyolefin, in addition to the at least one grafted copolymer, constitutes a polymeric binder of the floor covering.
2. (Currently amended) The floor covering as claimed in Claim 1, wherein the polyolefin has a density of 0.85 – 0.892 g/cm³.
3. (Currently amended) The floor covering as claimed in Claim 1, wherein the at least one polyolefin is selected from among the class of very low density (VLD) PE polymers.
4. (Currently amended) The A floor covering comprising: as claimed in Claim 1,
 - i) at least one polyolefin with a density < 0.910 g/cm³, wherein the at least one polyolefin is at least partially cross-linked, wherein the at least one polyolefin is a mixture of at least two ethylene copolymers, wherein the ethylene copolymer mixture comprises a copolymer (a) as the main polymer with a density of 0.89 – 0.91 g/cm³ and a copolymer (b) to control rheology and elasticity with a density of 0.86–0.88 g/cm³ and a melt flow index (MFI) > 3; and

AMENDMENT AND RESPONSE TO OFFICE ACTION

U.S. Application Serial No.: 09/700,099

Filed: December 11, 2000

- ii) at least one grafted copolymer, wherein the at least one grafted copolymer is maleic acid anhydride grafted HD polyethylene.
5. (Previously presented) The floor covering as claimed in Claim 4, wherein the copolymers (a) and (b) are present at a weight ratio of 4:1 to 3:2.
6. (Previously presented) The floor covering as claimed in Claim 4, wherein the copolymers (a) and (b) are copolymers of ethylene and octene.
- 7-8. (Cancelled)
9. (Previously presented) The floor covering as claimed in Claim 1, wherein the grafting degree is 1% to 5%.
10. (Currently amended) The floor covering as claimed in Claim 1, wherein the proportion of the at least one grafted copolymer in relation to the total weight of the polymeric binder is 5% to 25% by weight.
11. (Currently amended) The floor covering as claimed in Claim 1, wherein the polymeric binder elastomer is cross-linked with at least one cross-linking agent based on an organic peroxide and optionally a co-cross-linking agent.
12. (Previously presented) The floor covering as claimed in Claim 11, wherein the co-cross-linking agent is an isocyanuric acid derivative or an acrylate or a methacrylate derivative derived from a polyol.
13. (Previously presented) The floor covering as claimed in Claim 1, which further comprises a filler, a pigment, a processing aid, an antioxidant, a static eliminator, a UV stabilizer or a slip agent.

AMENDMENT AND RESPONSE TO OFFICE ACTION

U.S. Application Serial No.: 09/700,099

Filed: December 11, 2000

14. (Previously presented) The floor covering as claimed in Claim 13, wherein the filler is a mixture of platelet-shaped and crystalline mineral intergrowths.
15. (Previously presented) The floor covering as claimed in Claim 1, having a variable color pattern and a homogeneous design.
16. (Withdrawn) Process for producing a floor covering as claimed in Claim 1, comprising the provision of a substrate in the form of a strip and the application of the elastomers defined in Claim 1 to one side of the substrate.
17. (Withdrawn) Process for producing a floor covering as claimed in Claim 1 comprising the following steps:
 - (a) compounding of the polymeric material defined in [Claims 1 to 14] Claim 1 to produce a ground or granulate material;
 - (b) wetting of particles with a solution containing at least one organic peroxide free from aromatic hydrocarbons and possibly one or several co-cross-linking agents and possibly process oil, wherein the particles contain the above-defined polymers, which form the polymeric binder of the floor covering according to the invention, either cross-linked or partially cross-linked in the form of a ground or granulate stock,
 - (c) heating of the particles to a temperature at which the peroxide has sufficiently long stability, wherein the particles are subsequently precompacted and shaped into a flat product, and
 - (d) pressing of the flat product thus obtained in a suitable apparatus at a temperature at which the half-life of the peroxide is reduced such that cross-linking initiated by the peroxide simultaneously occurs to obtain a flat end product.
18. (Withdrawn) Process as claimed in Claim 17, wherein the wetting of the particles is carried out such that, in a first step, the particles are wetted and mixed with one or several co-cross-linking agents and possibly process oil and subsequently, in a second step, are

AMENDMENT AND RESPONSE TO OFFICE ACTION

U.S. Application Serial No.: 09/700,099

Filed: December 11, 2000

wetted and mixed with at least one organic peroxide free from aromatic hydrocarbons and possible process oil.

19. (Withdrawn) Process as claimed in Claim 17, wherein the mass in step (a) is compounded, in addition, with a chemical expanding agent.
20. (Withdrawn) Process as claimed in Claim 19, wherein, after cross-linking under pressure in step (d), foaming of the material is effected by releasing the pressure at a further increased temperature.
21. (Withdrawn) Process as claimed in Claim 19, wherein the chemical expanding agent is a sulfohydrazide or azodicarbonamide or a combination thereof.
22. (Withdrawn) Process as claimed in Claim 17, comprising the following steps:
 - (a) compounding of the polymeric material defined in Claim 1 together with additives, fillers, peroxide, co-cross-linking agents and a chemical expanding agent;
 - (b) partial cross-linking and foaming of the mixture in an extruder;
 - (c) discharging of the foam through an extruder nozzle into a water bath and granulating of the slab thus formed; and
 - (d) further grinding and drying of the granulate, which is then wetted with a mixture of liquid peroxide, co-cross-linking agents and mineral oil, wherein the ground stock is subsequently distributed over a release paper and covered with an anti-adhesive paper and is fed into a heated press, with the temperature and pressure adjusted such that the particle bed along the heating surfaces becomes plastic and melts to form a closed surface and at the same time the temperature initiates the decomposition of the peroxide, whereby the outer layers simultaneously cross-link, so that a floor covering with integral structure is obtained.

AMENDMENT AND RESPONSE TO OFFICE ACTION

U.S. Application Serial No.: 09/700,099

Filed: December 11, 2000

23. (Withdrawn) Process as claimed in Claim 19, wherein the back of the covering is ground for sizing in a post-treatment step.
24. (Withdrawn) Process as claimed in Claim 17, wherein the structure of the cross-linked material is revealed after exposing the surface by grinding and/or splitting.
25. (Cancelled)